

Answer the questions using area (Geometry formulas)

1.) If velocity is given by the function $v(t) = -|x - 5| + 5$, then what is the change in position from time $t=0$ to $t = 10$?

2.) The rate at which ocean deposits sand on the beach is given by the piecewise function:

$$S(x) = \begin{cases} 2x; & 0 \leq x \leq 3 \\ 6; & 3 < x \leq 6 \\ -2x + 18; & 6 < x \leq 9 \end{cases}$$

How much sand is deposited from time $x = 0$ to $x = 9$?

3.) People are entering an amusement park at a rate given by the function $P(x) = \sqrt{25 - (x - 5)^2}$. How many people enter the park between time $x = 0$ and $x = 10$?